

USSR

UDC 539.3

BARISHPOL'SKIY, B. M., MAKEYEVA, Z. A.

"Solution of the Problem of the Bending of Thin Plates by the Polarization-Optical Method"

V sb. Modelir. pri issled. stroit. konstruktsiy (Modeling in the Study of Structures -- Collection of Works), Kiev, 1972, pp 11-12 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V198)

Translation: It is proposed that numerical methods be used in conjunction with polarization-optical methods in studying the stress-deformation state of thin plates. Stresses on the boundary are determined on the basis of data on polarization-optical measurements of cuts made along the contour of a frozen model of the plate. Then the sum of the major stresses is determined for a singly connected plate from the solution of the Dirichlet problem for the Laplace equation and the values of the bends are obtained from a solution of the Poisson equation. V. P. Netrebko.

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UDC: 632.954:632.911

SOKOLOV, M. S., IZUBENKO, V. V., MAKEYEVA-GUR'YANOVA, I. T., NIKITIN, N. V.,  
and TEREKHOV, V. I.

"Determining the Absorption of Herbicides by Plants With the Use of  
Artificial Irrigation"

Moscow, Khimiya v Sel'skom Khozyaystve, no 11, Nov 70, pp 48-52

Abstract: In agricultural practice, rains falling immediately after the treatment of seedlings generally necessitate repeated application of herbicides. The effectiveness of systemic herbicides largely depends on their rate of penetration. It also depends on the composition, form, dose of the toxic agent, the development of the plants, their sensitivity to the agent and the characteristics of the cover tissue of the plant. It was found that the rate of penetration of hydrophilic toxic agents and the rain resistance of herbicides can be readily established using

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SOKOLOV, M. S., et al, Khimiya v Sel'skom Khozyaystve, no 11, Nov 70, pp 43-52

artificial sprinkling to imitate rain with an intensity of 0.83 mm/min at a precipitation norm of 10 mm. The herbicide absorption is arbitrarily characterized by its semilethal dose penetration time. The rate of penetration of aqueous solutions of herbicides in ready-to-use solutions is higher than that of their chemically pure form. The experimental data on the penetration rate and wash-off of 2,4-D sodium salt were confirmed by the microquantitative determination of the toxic agent absorbed by the plants. Tables in the original article cite data on absorption and retaining of the triethanolamine salt of 2,4-D with irrigation and those on the sodium salt of 2,4-D with irrigation and wash-off.

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1/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--PROTEIN METABOLISM IN WHEAT DURING THE USE OF 2,4,D -U-

AUTHOR--(04)--KRISHCHENKO, V.P., KALININ, V.A., MAKHADAD, M., CHERNYAYEV,  
N.G.

COUNTRY OF INFO--USSR

SOURCE--AGROKHIMIYA 1970, (5), 102-8

DATE PUBLISHED-----70

SUBJECT AREAS--AGRICULTURE, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--WHEAT, PROTEIN METABOLISM, PLANT GROWTH REGULATOR, CHLORINATED  
ORGANIC COMPOUND, BENZENE DERIVATIVE, HERBICIDE, CHROMATOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3006/0454

STEP NO--UR/0485/70/000/005/0102/0108

CIRC ACCESSION NO--AP0134222

UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134222

ABSTRACT/EXTRACT--(U) OP-0- ABSTRACT. 2,4,D DECREASED THE TOTAL CONTENT OF EASILY AND DIFFICULTY SOL. PROTEINS AND INCREASED THE PROPORTION OF MODERATELY SOL. PROTEINS IN WHEAT VEGETATIVE MASS. IN PROPORTION TO THE GROWTH OF TREATED WHEAT, THE HERBICIDE WAS OBSO. IN ALL THE PROTEIN FRACTIONS AND INCREASED IN THE DIFFICULTY SOL. PROTEINS AS THE TOTAL AMT. OF 2,4,D DECREASED. TEAE, CELLULOSE CHROMATOG. OF THE H SUB2 O SOL. PROTEIN FRACTION IN THE VEGETATIVE MASS OF PROTEIN FROM WHEAT INCORPORATING 2,4,D SHOWED THAT THE HERBICIDES WAS INCORPORATED INTO ONLY 1 SUBFRACTION.

UNCLASSIFIED

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UDC 621.762:669.018.44(088.8)

DUKARSKIY, S. M., RODCHENKO, M. I., TARABANOV, A. S., MAKHALOV, P. N., and DUDIN, V. V.

"Press Powder for Manufacture of Heat Resistant Products"

USSR Author's Certificate No. 252165, Filed 14/06/67, Published 24/07/70  
(Translated from Referativnyy Zhurnal-Metallurgiya, No. 2, 1971, Abstract No. 2 G457 P)

Translation: The press powder includes a carbon-containing filler, organic binder, metal oxide easily reduced by carbon, such as  $TiO_2$ , and impurities.

In order to increase the strength of products upon silicizing, the powder contains a phenol formaldehyde resin as a binder, graphite as the carbon-containing filler, with the components of the press powder in the following weight parts: graphite 65-85,  $TiO_2$  8-15 per 100 weight parts of the mixture, phenol formaldehyde resin 5-20, impurity 0.5-5.

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UDC: 547.558.1

TSVETKOV, Ye. N., MAKHAMATKHANOV, M. M., LOBANOV, D. I., and KABACHNIK, M. I.,  
Institute of Organoelemental Compounds, Academy of Sciences of the USSR

"Electronic Effect of Phosphorus-Containing Substituents. Constants  $\sigma_m$  of  
Diphenylphosphino-, Diphenylphosphinyl and Diphenylthiophosphinyl Groups"

Leningrad, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, pp 2387-2390

Abstract: This paper is a continuation of research on synthesis of phosphorus-containing phenols and determination of their ionization constants. The constants  $\sigma_m$  are calculated for the  $(C_6H_5)_2P-$ ,  $(C_6H_5)_2P(O)-$  and  $(C_6H_5)_2P(S)-$  groups by using the ionization constants of the corresponding meta-substituted phenols. The phosphorus-containing phenols -- m-diphenylphosphino-, m-diphenylphosphinyl-, and m-diphenylthio-phosphinylphenols -- were synthesized by Lamza's method (J. pr. Chem., 25, p 294, 1964). The ionization constants of these phenols were determined by potentiometric titration in a water-alcohol mixture (1:1 by volume) at 25°C. The constants  $\sigma_m$  were then calculated by a previously derived formula. The results are tabulated.

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UDC 547.558.2

YAKOVLEVA, YE. A., ISAYEVA, G. G., MAKHANOV, M. M., ZHURKOVA, A. M.,  
TSVETKOV, YE. N., KARACHNIK, M. I., and SEATERSHTEYN, A. I., Physicochemical  
Institute imeni L. Ya. Karpov and Institute of Organoelemental Compounds,  
Academy of Sciences USSR

"Partial Rate Factors for Protophilic Deuteroexchange of Dimethylphosphine  
with Liquid Ammonia under Potassium Amide Catalysis"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70, pp 1626-1631

Abstract: The authors undertook to determine the partial rate factors for  
deuteroexchange with liquid ammonia ( $\text{NH}_3$  catalyst,  $25^\circ$ ) for all ring positions  
of dimethylphosphine. The deuterated dimethylphosphines were synthesized by the  
reaction of the corresponding organomagnesium compounds with dimethylphosphinic  
chloride and subsequent reduction of the resultant oxides with silicochloro-  
form. The structure of the isomers was confirmed by IR spectra. The partial  
rate factors were calculated on the basis of measurements of the deuterization  
reaction rate constants for dimethyl-o-m-, and p-deuterophenylphosphine.

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YAKOVLEVA, Ye. A., et al., Zhurnal Obshchey Khimii, Vol 40, No 7, Jul 70,  
pp 1626-1631

Approximate comparative data were also obtained on the protophilic dedeuteration rates for dimethyl-m- and p-trideuterotolylphosphines. The results indicated that the  $(CH_3)_2P$  group was an electron acceptor in the reaction of protophilic isotopic hydrogen exchange with a strong base.

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UDC 547.241

TSVETKOV, YE. N., MAKHAMATKHANOV, M. M., LOBANOV, D. I., and KABACHNIK, M. I.,  
Institute of Elementoorganic Compounds, Academy of Sciences USSR

"Electronic Influence of Phosphorus-Containing Substituents: The  $\sigma^-$  and  $\sigma^m$   
Constants for Dimethylphosphino-, Dimethylphosphinyl, dimethylethiophosphinyl,  
and Trimethylphosphonyl Groups"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), Vyp 4, 1972, pp 769-779

Abstract: The synthesis was reported for a number of phenol derivatives having the groups  $(\text{CH}_3)_2\text{P}$ ,  $(\text{CH}_3)_2\text{P}(\text{O})$ ,  $(\text{CH}_3)_2\text{P}(\text{S})$ , and  $(\text{CH}_3)_3\text{P}^+$  in the meta and para positions. The electrophobic character ( $\sigma^-$  and  $\sigma^m$ ) of each derivative was calculated. The ionization constant of each derivative was measured by potentiometric titration in water and in a 1:1 by volume mixture of ethanol and water. The influence of the  $\sigma^-$  and  $\sigma^m$  on the  $\text{pK}_a$  values (7.55 to 10.90) is essentially the same for all groups. The Bronsted equations describing the relationship between the  $\text{pK}_a$  for water and the  $\text{pK}_a$  for alcohol are given. The C-H vibrational frequencies were determined by IR; NMR spectra were also examined. All the data indicate that the studied substituents are  $\pi$ -acceptors and are directly related to reactive electron-donor centers.

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1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--IONIZATION CONSTANTS FOR M AND P DIMETHYLPHOSPHINOPHENOLS -U-  
AUTHOR-(04)-TSVETKOV, YE.N., MAKHAMTUKHANOVA, M.M., LOBANOV, D.I.,  
KABACHNIK, M.I.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 500-1  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--IONIZATION, ORGANIC PHOSPHORUS COMPOUND, PHENOL,  
POTENTIOMETRIC TITRATION, DEALKYLATION, ISOMER, MOLECULAR ORBITAL  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1995/1397 STEP NO--UR/0079/70/040/002/0501/0500  
CIRC ACCESSION NO--AP0116844

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2/2 023

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PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0116844

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEALKYLATION OF ANISOLE ANALOGS WITH 48PERCENT HBR GAVE M ME SUB2 PC SUB6 H SUB4 OH.HBR, M. 142-3DEGREES, PKA SUB1 5.89, PKA SUB2 9.66; PARAISOMER, M. 214-15DEGREES, PKA SUB1 6.75, PKA SUB2 9.41. THE PKA VALUES WERE CALCD. FROM POTENTIOMETRIC TITRN. DATA AT 25DEGREES. THE PKA VALUES ARE COMPLEX OR MACROSCOPIC CONSTS. IN WHICH BETAIN FORMATION IS REGLIGIBLE IN THE META ISOMER BUT APPRECIABLE IN THE PARA ISOMER. THUS THE 1ST PKA REFERS TO LOSS OF PROTON FROM THE P ATOM, WHILE THE 2ND PKA COVERS THE IONIZATION OF THE HO GROUP. THE PKA SUB2 VALUES ARE BELIEVED TO REFLECT THE ELECTRONIC EFFECTS OF THE ME SUB2 P GROUP AND THE LARGER VALUE OF THE PARA ISOMER INDICATES THE ELECTRON ACCEPTOR NATURE OF THE ME SUB2 P GROUP OWING TO THE ABSENCE OR SMALLNESS OF THE P PI CONJUGATION AND THE EXISTENCE OF THE ACCEPTOR TYPE OF CONJUGATION WITH THE HIGHER VACANT ORBITALS IN P. FACILITY: INST. ELEMENTOORG. SUEBIN., MOSCOW, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--NUCLEOPHILIC CONSTANTS OF SOME GROUPS CONTAINING PHOSPHORUS (V) -U-  
AUTHOR--TSVETKOV, YE.N., MAKHAMATKHANOV, M.M., LOBANOV, D.I., KASACHNIK,  
M.I.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (1), 178-80  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--OXIDATION, ORGANIC PHOSPHORUS COMPOUND, PHOSPHINE SULFIDE,  
POTENTIOMETRIC TITRATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1984/1667 STEP NO--UR/0062/70/000/001/0178/0180  
CIRC ACCESSION NO--A00100271  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0100271

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OXIDN. OF APPROPRIATE PHOSPHINES WITH H SUB2 O SUB2 OR ADDN. OF S TO THESE GAVE THE FOLLOWING XC SUB6 H SUB4 OH (X, M.P., PKA AND HAMMETT SUBSTITUENT CONSTANT SHOWN, RESP.): P, ME SUB2 P (O), 188-9DEGREES, 8.45, 0.62; M, ME SUB2 P (O), 165-6DEGREES, 8.90, 0.42; P ME SUB2 P (S), 104-5DEGREES, 8.44, 0.62; M, ME SUB2 P (S), 69 TO 70DEGREES, 8.87, 0.43; P, ME SUB3 P (IODIDE SALT), 248-9DEGREES, 7.55, 1.02; AND M, ME SUB3 P (IODIDE SALT), 219-20DEGREES, 8.03, 0.81. THE PKA VALUES WERE OBTAINED POTENTIOMETRICALLY IN AQ. SOLN. THE SUBSTITUENT CONSTS. SIGMA PRIME NEGATIVE WERE CALCD. FROM PKA DATA BY THE CORRELATION EQUATION: PKA EQUALS 9.82 PLUS 2.217 SIGMA PRIME NEGATIVE. THE ABOVE X GROUPS ARE SOMEWHAT LESS EFFECTIVE AS POLAR SUBSTITUENTS THAN ARE THE ETO SUB2 C AND AC GROUPS.

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UDC: 547.558.1

TSVETKOV, YE. N., MAKHAMATKHANOV, M. M., LOBANOV, D. I., and KABACHNIK, M. I., Institute of Organoelemental Compounds, Moscow, Academy of Sciences USSR

"Ionization Constants of m- and p-Dimethylphosphinophenols"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 2, Feb 70, pp 500-501

Abstract: In connection with the study of p- $\pi$  conjugation in trivalent phosphorus compounds, the authors prepared m- and p-dimethylphosphinophenol hydrobromides by dealkylation of the corresponding dimethylphosphinoanionoles with 48 percent hydrobromic acid. The ionization constants of the resultant compounds were determined by potentiometric titration in water at 25° in an argon current. m-Dimethylphosphinophenol hydrobromide:  $pK_{a1} = 5.89 \pm 0.04$ ,  $pK_{a2} = 9.66 \pm 0.04$ . p-Dimethylphosphinophenol hydrobromide:  $pK_{a1} = 6.75 \pm 0.04$ ,  $pK_{a2} = 9.41 \pm 0.04$ .

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MAKHAMATOV, A. , PROSKUROV, V.

"Composition and Structure of the Software of the Computer of an ACS"

Vopr. Kibernetiki [Problems of Cybernetics -- Collection of Works], No 51, Tashkent, 1972, pp 55-62 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V669, by the authors).

Translation: The basic statements are formulated which should be used as a basis for the creatio of the software of a computer, particularly one of the Minsk family, used as the hardware in an automatic planning and control system. The experience of Soviet scientists in the creation of software for computers and the technical parameters of the parameters which are significant for programming are presented.

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USSR

UDC: 535.34

MAKHANEK, A. G., KOROL'KOV, V. S., and FEDOROV, A. F.

"Two-Photon Absorption in Molecules"

Minsk, Zhurnal Prikladnoy Spektroskopii, No 6, 1973, pp 1007-1014

Abstract: This article is the continuation of an earlier paper published in the journal named above by the first-named author (16, 1972, p 699) in which it was shown that the use of analytic methods of multiquantum processes for computing the various spectroscopic characteristics of atoms, excitons, and molecules was simple and effective. The present article considers an analytic solution for the problem of two-photon absorption of heteronuclear two-atom molecules described by the Kratzer and Morse potentials. It is assumed that the absorption occurs without a change in the basic electron term. On the basis of formulas obtained for the Morse potential, the cross section of the two-photon resonance absorption of light for the HCl molecule is computed. This value is found to be in close agreement with that computed by the authors using semi-empirical values for the matrices of dipole moment elements. They thank P. A. Apanasevich for his comments on the results of the work.

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USSR

UDC: 669.24'26:620.183

VINOGRADOVA, N. I., DAVYDOVA, V. V., MAKHANEK, G. V., PETROVA, S. N.,  
SADOVSKIY, V. D., Leningrad Polytechnic Institute imeni Kalinin

"Application of a Metallographic Method for Determination of the Depth of  
Surface Hardening in Nickel-Chromium Based Alloys"

Moscow, Zavodskaya Laboratoriya, No 11, 1972, pp 1359-1360.

Abstract: The influence of the chemical composition of alloys on the possibility of metallographic determination of strain hardening by decoration of dislocations with the carbide phase liberated upon aging is studied. The method can be used for nickel-chromium alloys of any composition with carbon contents of at least 0.05%. Hardening 20-30  $\mu$  up to several millimeters in depth is revealed.

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USSR

UDC. 669.14.018.44:620.18

SADOVSKIY, V. D., PETROVA, S. N., MAKHANEK, G. V.

"A Special Type of Separation of the Carbide Phase During Aging of KhN77TYuR Alloy"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 12, 1972, pp 5-7.

Abstract: This work studies the peculiarities of intragrain separation of chromium carbides during aging of KhN77TYuR commercial alloy. Specimens 20 mm in diameter and 10 mm high were heated at 1080, 1150 and 1200°C, then cooled in water, in air and with the furnace, after which they were aged at 700-900°C for several minutes to 30 hours. This was followed by structural studies with optical and electron microscopes. The data presented show that in this alloy the chromium carbide  $\text{Cr}_{23}\text{C}_6$ , having an identical face-centered cubic lattice with the matrix, but with three times greater lattice parameter, can develop at dislocations during aging and separate within the grain. With high dislocation density, the carbide phase decorates the dislocations, allowing the dislocation structure of the alloy to be studied on an optical microscope.

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USSR

UDC 546.185

SLYUSARENKO, Ye. I., MAKHAYLIK, S. K., GAMALEYA, V. F., and SHOKOL, V. A.,  
Institute of Organic Chemistry, Ukrainian Academy of Sciences

"Derivatives of Isocyanatophosphoryl Dichloride and Diisocyanatophosphoryl  
Chloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, Nov 1971, pp 2,383-2,386

Abstract: The dialkyl esters of alkoxy-carbonylamido- and ureidophosphoric acids have contributed a number of substances with insecticidal and complexing properties; this suggested the synthesis the monoalkyl esters of these acids. Alcohols and aniline, and also alcohols in the presence of triethylamine and water, and triethylamine alone, react with isocyanatophosphoryl dichloride; this produced the monoalkyl esters of alkoxy-carbonylamido- and 3-phenylureidophosphoric acids. Alcohols, mercaptans, thiophenols, and aniline react with diisocyanatophosphoryl chloride to form the acid chlorides of bis(alkoxy-carbonylamido)-, bis[(alkylthio)carbonylamido]-, bis[(phenylthio)carbonylamido]- and bis(3-phenylureido)phosphoric acids. The hydrolysis of these substances yields free acids. Sixteen compounds were synthesized. Procedures of synthesis are given, along with some physical data on the esters.

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USSR

UDC 621.384.6

GROSS, L.P., IVANOV, G.M., YAKHENKO, L.A., SHAL'NOV, A.V.

"An Experiment On The Effect Of The Current Load Of A Waveguide Accelerating Structure"

V sb. Uskoriteli (Accelerators--Collection Of Works), No 12, Moscow, Atomizdat, 1970, pp 36-43 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12A370)

Translation: The interaction of a succession of grouped clusters with the waveguide structure was experimentally studied under conditions of inequality of velocities of the accelerating wave and particles. The fourth section of the 360 Mev electron linear accelerator of the Physico-Technical Institute of the AS, Ukr SSR was used as a waveguide structure. During the experiment a method was used for shift of the dispersion curve of the waveguide structure by a change of its temperature. The signal induced by the beam in the waveguide structure was lead to the outside and measured with the aid of a linear detector, calibrated by a thermocouple. The dependence obtained of the intensity of the induced field on the frequency difference agrees with the theoretical curve within the limits of 5 percent. A direct inspection was conducted of a model representation of the pattern of the induced field transients at the beginning and at the end of a current pulse. An osciloscopic analysis of the pulses confirmed the presence of amplitude and phase modulation of the radiation field in a transient regime. S.F.

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USSR

UDC 621.317.8

MAKHIN, I. V.

"Printed Resistors"

Mikroproved i pribory soprotivl. -- V sb. (Microwiring and Resistors -- Collection of Works), No 8, Kishinev, Kartya Moldovenyaske Press, 1971, pp 103-107  
(from RZh-Radiotekhnika, No 10, Oct 71, Abstract No 10V320)

Translation: Data on printed resistors manufactured from manganin foil of the following composition are presented: Mn 11.5%, Ni 2.5%, Fe 0.2%, Al 0.25%, the rest, copper. The thermal coefficient of resistance is  $\leq 0.0005\%$  per  $^{\circ}\text{C}$ . The adjustment technique is described based on the fact that the resistor billet is printed with shunting jumpers which are cut correspondingly when adjusting. There are 2 illustrations and a 6-entry bibliography.

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- USSR

UDC: 536.46:533.6

YURMANOV, YU.A., RYZHIK, A.B., LIMONOV, B.S. and MAKHIN, V.S.

"On Ignition of Dispersed Magnesium in Oxygen Behind the Shock Waves"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972 (11-th All-Union Conference on Problems of Evaporation, Combustion and Gas Dynamics of Dispersion Systems, 1972), 1972, p 58 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2B1005)

Translation: Tests were conducted with a shock tube of 7.5 m length, 100 mm inside diameter (length of high-pressure chamber 3 m), initial pressure of oxidizing gas (oxygen) 120 mm of mercury. Products of explosion of  $2H_2+O_2+4He$  mixture with various initial pressures were used as propelling gas, particle size did not exceed 20 micrometer.

Analysis of experimental data shows that the ignition of magnesium particles occurs in the reflected wave and that the duration of pre-ignition heating depends substantially on the intensity of the impinging shock

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YURMANOV, YU. A., et al., 11-ya Vses. Konf. po Vopr. Ispareniya, Gorenija i Gaz. Dinamiki Dispersn. Sistem, 1972

wave. Calculations show that heating of solid particles suspended in the gas results in considerable reduction of reflection zone temperature, therefore it should be considered as temperature of the medium where ignition takes place. The observed exponential relation between ignition lag and temperature indicates that increase of the latter may result in ignition lag becoming of the same order as the duration of explosion induction.

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USSR

UDC 629.7.036.54:536.46

YURMANOV, Yu. A., RYZHIK, A. B., LIMONOV, B. S., and MAKHIN, V. S.

"The Ignition of Dispersed Magnesium in Oxygen Behind Shock Waves"

Odessa, 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972--Sbornik (11th All-Union Conference on Problems of the Evaporation, Combustion, and Gas Dynamics of Dispersed Systems, 1972--Collection of Works), 1972, p 58 (from Referativnyy Zhurnal--Aviatsionnyye i Raketnyye Dvigateli, No 1, 1973, Abstract No 1.34.151. Resume)

Translation: The investigation of the relationship of the ignition lag time of metal particles to temperature involved experiments with a shock tube 7.5 m long with an internal diameter of 100 mm (the length of the high-pressure chamber was 3 m) and an initial inflammable-gas pressure of 120 torr. The detonation products of a mixture of  $2H_2+O_2+4He$  at various initial pressures and particle size not more than 20 microns were used as the pusher gas. From an analysis of the experimental data, it follows that the ignition of magnesium particles takes place in a reflected wave and the duration of preflame heating depends substantially upon the intensity of the incident shock wave. Calculations show that the heating of solid particles in a gas suspension leads to a considerable decrease of temperature in the

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YURMANOV, Yu. A., et al., 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972—Sbornik, 1972, p 58

reflection zone, and in connection therewith this temperature should be regarded as the temperature of the medium, at which the ignition process develops. Within the temperature range of  $T = 2160-3490^{\circ}\text{K}$  the ignition lag time turned out to equal 1.6-0.5 milliseconds. The disclosed exponential relationship of the ignition lag time to the temperature signifies that with a temperature increase, the lag value can become of the same order of magnitude as the induction period during detonation.

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USSR

MAKHIN'KO, V. I., and SHCHEGOL'KOV, V. N., Khar'kov State University imeni  
~~A. M. Gor'kly~~

"Sensing Element for Polarographic Studies"

USSR Authors' Certificate No 356545, Cl. G 01n 33/16, filed 5 Feb 71, published 23 Oct 72 (from Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 32, 1972, p 123)

Abstract: The device contains a general frame, a thermostatically controlled gas-exchange chamber, a magnetic stirrer, a diffusion membrane and an electrolytic cell. To assure reliable stirring of the studied liquid, maintain constancy of the space between the diffusion membrane and the electrodes of the electrolytic cell, and eliminate membrane damage by the magnetic stirrer, the magnetic stirrer takes the form of helically twisted blades made of an inert material with a built-in magnet of soft iron and revolves in a centering screw and centering washer, which are mounted in the general frame of the sensing element. The diffusion membrane is mounted between the centering

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MAKHIN'KO, V. I., and SHCHEGOL'KOV, V. N., USSR Authors' Certificate No 356545

washer and hermetic-sealing rings, which assure a certain gap between the diffusion membrane and the electrodes of the electrolytic cell, which is joined to the general frame by means of the thread.

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USSR

MAKHKAMOV, G. Y., Professor, Chair of Nutritional Hygiene, Tashkent Medical Institute

"Problems of Nutritional Hygiene in a Hot Climate"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 9, Sep 70, pp 141-146

Abstract: The rapid growth of agriculture, animal husbandry, and industry in the arid and semiarid regions of Central Asia is attracting workers from other parts of the country who are not adapted to the hot and arid climate. Investigations have proved that high external temperature produces essential shifts in certain human physiological functions, necessitating a scientifically substantiated nutritional regime. The effect of a hot climate on basal metabolism and on protein requirements are being investigated. The results of studies demonstrate that the protein requirement in hot climates is as great as in moderate ones, while the water-soluble vitamin and mineral salt requirements during the hot season are 30-40% higher. A limited fat intake is more justified than the limited protein intake suggested by some investigators. Great importance is attached to a variety of protective foods (milk, meat, vegetables, and fruit), replacement of fluids lost through perspiration, determination of residual amounts of toxic chemicals from the extensively used pesticides, and prevention of some specific toxicoses among children.

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USSR

UDC 534-8

MAKHAMOV, S., SHARIPOV, Sh., IVANOV, A. A., DAVIDOVICH, L. A.,  
KHALIULIN, M. G., KHABIBULLAYEV, P. K.

"Concerning the Acoustical Relaxation Mechanism in Certain Pure Fluids and Their Solutions"

Uch. zap. Tashkent. gos. ped. in-t (Scientific Notes of Tashkent State Pedagogical Institute), 1970, Vol. 90, pp 35-45 (from RZh-Fizika, No 10, Oct 72, Abstract No 10Zh609)

Translation: The acoustical properties of the following low-viscous liquids were investigated: carbon sulfide, carbon tetrachloride, chloroform, methylene chloride, methylene boride, benzene, pyridine, thiophene, cyclohexane, acetic acid and its solutions in pyridine. The amplitude coefficient of the absorption was measured at frequencies from 285 kHz to 5 MHz by the substitution method with an accuracy of 7-10% and in the range from 5 MHz to 3 GHz by the pulse method with an accuracy of 3-5% at low frequencies and 7-10% at high frequencies. The speed of sound was measured by the phase method with an accuracy up to 0.1%. The results are discussed from the aspect of vibrational and structural relaxation and their mutual effect. V. Ye. Gordeyev.

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Acc. Nr: **AP0049059**

Ref. Code: **UR0357**

PRIMARY SOURCE: Vestnik Oftal'mologii, 1970, Nr / ,  
pp 78-80

ANATOMO-TOPOGRAPHIC PECULIARITIES OF EXTERNAL MUSCLES  
OF THE EYE

Kh. Makhkamova

Summary

Anatomo-topographic specificity of external muscles was studied on 40 cadaveric eyes. Variation processing of the data obtained furnished grounds for determining principal anatomo-topographic characteristics for external muscles of the eye (the site of fixation to the sclera, tendon width at the site of fixation, tendon length, the length of muscles, their width in the distal, median and proximal parts, thickness of the muscles and orientation of the muscle's plane).

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REEL/FRAME  
**19800846**

USSR

UDC 639.3.045

MAKHLIN, M.; ORLOV, Yu.

Moscow, Emblema s Letyashchey Ryboy (Emblem With a Flying Fish),  
"Pishchevaya Promyshlennost'", 1971, 168 pp

Translation: Annotation: Fourteen seas, hundreds of thousands of lakes and rivers, numerous water reservoirs -- these are the richest water resources of the Soviet Union. Relationships among the inhabitants of these bodies of water have been developing for millions of years.

Is it possible to penetrate the mysterious secrets of these historical relationships and influence them in a manner that will increase the productivity of the bodies of water and will improve the species composition of the animals?

Working on the solution of this problem are hydrobiology acclimation specialists.

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USSR

MAKHLIN, M., et al, Emblema s Letyashchey Ryboy, "Pishchevaya Promyshlennost'," 1971, 168 pp

The subject of this book is hydrobiology acclimation specialists -- people of a rare profession who are concerned with the purposeful distribution of fish, gradual extension of the zone of hydrobiological organism as a result of canals being dug and increase in marine shipping, potent useful and harmful biological explosions, and attempts to regulate these explosions.

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USSR

MAKHLIN, M., et al, Emblema s Letyashchey Ryboy, "Pishchevaya Promyshlennost'," 1971, 168 pp

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3/4

USSR

MAKHLIN, M., et al, Emblema s Letyashchey Ryboy, "Pishchevaya Promyshlennost'," 1971, 168 pp

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USSR

UDC 577.391

MAKHLINA, A. M., VINOGRADOVA, M. F., and VODOP'YANOVA, L. G.

"The Relative Radiation Sensitivity of Some Animal Organs"

Leningrad, Vestnik Leningradskogo Universiteta, Biologiya, No 2, 1973,  
pp 88-94

Abstract: At the peak of radiation sickness (72 hrs after irradiation of rats and rabbits with a lethal dose of X-rays amounting to 1,000-1,200 and 3,000 R, respectively), changes in the proteins, nucleic acids, and lipids of the animals' small intestine, liver, spleen, brain, and skeletal muscles were studied. On the basis of changes established by the investigation of organ and tissue homogenates, the small intestine, spleen, and liver must be regarded as radiation-sensitive, while the brain and skeletal muscles are radiation-resistant. The results obtained for mitochondria isolated from the organs of the animals agreed with those obtained in the study of homogenates derived from the organs in question. The conclusions reached in regard to the relative radiation sensitivity of the organs and tissues studied are in agreement with those arrived at by other investigators, except in the case of the liver, which is regarded as radiation-resistant in some published work. According to the data obtained in the present work, the biosynthesis of total lipids in the liver of rats decreased by 32%, while that of cholesterol increased by a factor 1/2

USSR

MAKHLINA, A. M., et al., Vestnik Leningradskogo Universiteta, Biologiya, No 2, 1973, pp 88-94

of three. The content of lipids + cholesterol increased by 11-12%. The biosynthesis of total lipids and proteins in the mitochondria of the rat liver increased significantly, while a change in the content of these two components did not take place. The biosynthesis of lipids and proteins was studied by means of a tracer introduced by the addition of radioactive Na acetate ( $2^{14}\text{C}$ ). The results of the work described indicated that the radiation sensitivity increased with increasing intensity of the metabolic activity of the organs and tissues.

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Epidemiology

USSR

UDC 616.988.75(A2)-053.2-036.1

SUKHAREVA, M. Ye. and MAKHLINOVSKAYA, N. I., Chair of Infectious Diseases of Children, Central Institute for Advanced Training of Physicians, Moscow

"Dynamics of Clinical Manifestations of A2 Influenza in Children During Epidemic Periods of 1957 Through 1970"

Moscow, Sovetskaya Meditsina, No 5, 1972, pp 129-132

Abstract: Changes in A<sub>2</sub> influenza epidemics in children during 1957-1970 were examined. A total of 2200 case histories were investigated from epidemics in 1957, 1959, 1965, 1969 and 1970. Diagnosis was established by virus isolation in tissue culture, fluorescent antibody detection of virus antigen, and preparation of antibody titers. Symptoms remained generally unchanged throughout the period. However, the severity of attack was greater in 1957 and 1959, with higher fever, more pulmonary edemas, and further incidence of hemorrhagic syndrome. Symptoms of the encephalitic and meningoencephalitic syndromes (brief cramps, loss of consciousness, delirium, dissociated meningeal indications) decreased in 1965 and went up in 1969 and 1970. A decrease of lethal cases and a lessening of the severity of pneumonia occurred overall. The significance of premorbid conditions and other virus complications in contributing to fatalities was observed. The lessened

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USSR

SUKHAREVA, M. Ye., and MAKHLINOVSKAYA, N. L., Sovetskaya Meditsina, No 5, 1972, pp 129-132

severity of influenza is believed to be due to changes in the immunological structure of the population with prolonged circulation of virus A<sub>2</sub>. Improved clinical facilities also are an important factor. However, influenza continues to have great significance in pediatric infectious pathology.

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Polymers and Polymerization

USSR

UDC 541(64+15).654

MAKHILIS, F. A., GUBANOVA, G. G., and POPOVA, V. M., Scientific Research  
Institute of the Rubber Industry

"Changes in the Structure of Butadiene-Nitrile and Fluororubbers Upon Gamma-Irradiation"

Moscow, Vysokomolekulyarnyye Soyedineniya, Vol 15, (A), No 9, Sep 73, pp 1995-2002

Abstract: The effects were studied of the temperature of irradiation with gamma-rays from  $^{60}\text{Co}$  and of the absorbed radiation dose on the structurization and destruction of butadiene-acrylonitrile rubbers (BNK) with an acrylonitrile content ranging from up to 20 to up to 50% (SKN 18, 26, 40, and 50) and also of fluororubber SKF-26 (a copolymer of vinylidene fluoride with hexafluoropropylene). The rubber samples were irradiated in the vulcanized and unvulcanized and strained and relaxed states. Irradiation of BNK and their vulcanizates with low doses resulted in scission of the nodes of the network and also of the principal polymer chains, while irradiation with higher doses resulted principally in destruction of the nodes of the network. Irradiation of SKF-26 resulted in scission of the principal chains, which was accompanied by structurization consisting mainly of the formation

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USSR

MAKHLIS, F. A., et al., Vysokomolekulyarnyye Soyedineniya, Vol 15, No 9,  
Sep 73, pp 1995-2002

of trifunctional nodes. The rate of destruction of stressed and vulcanized  
samples was higher than that of samples in a relaxed state.

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USSR

UDC 541.15+678.1

KUZ'MINSKIY, A. S., FEDOSEYEVA, T. S., and MAKHLIS, F. A.

"Radiation Vulcanization and Modification of Rubbers"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva imeni D. Z. Mendeleev, Vol 18, No 3, 1973, pp 285-293

Abstract: A review with 54 references analyzing contemporary state of the problem of practical utilization of ionizing radiation in rubber industry. A detailed analysis is carried out of the physico-chemical, technological and economical aspects of the problem. The feasibility and desirability of carrying out radiation modification of rubber materials by means of grafted polymerization of polyfunctional compounds from liquid phase have been demonstrated; optimal doses have been decreased and the properties of radiation vulcanizates have been improved.

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MAKHMUDOV, A.A.

Econ

RECENT ACTIVITIES OF AZERBAIDZHAN ECONOMICS INSTITUTE CHRONICLED

[Article by A. A. Makhaudov and A. G. Manafov; Moscow, Izvestiya Akademii Nauk SSSR: Seriya Ekonomicheskaya, Russian, No 1, 1972, pp 149-152]

In recent years a central place in the work of the Institute of Economics of the Academy of Sciences of the Azerbaijan SSR has been occupied by the elaboration of a series of problems relating to the joint study of theoretical problems in the political economy of socialism, to increasing the effectiveness of social production, and to the implementation of economic policy under present conditions. Thus in 1970 the Institute's collective worked on such important problems as: increasing the economic effectiveness of productive capital and of capital investment in new equipment; the federal plan for the distribution of the productive forces of the USSR for the period 1970 to 1980; the scientific principles of cost accounting and economic incentives in the various elements of the national economy; and the economic patterns in the development of socialism and in the transition to communism.

Work was completed on the following aforementioned topics in 1970: "Analysis and Avenues to Increasing the Economic Effectiveness of Capital Investment in the Republic's National Economy"; "Forecasting the Work Force and its Most Effective Deployment Over an Extended Period"; "Ways of Increasing the Economic Growth Level in the Western Part of the Azerbaijan SSR"; "Investigation of Various Economic Incentives for the Development of Production in Various Branches of Industry in the Azerbaijanian SSR"; "Economic Effectiveness in the Intensification of Agricultural Production"; "Structure of Industrial Production and Ways of Improving It"; "Socio-economic Changes in Soviet Azerbaijan Villages"; "The History of the National Economy of Azerbaijan in the 19th and Early 20th Centuries"; "History of the Azerbaijan National Economy in the Soviet Period."

These works summarize the findings of the Institute's scientific research, and offer substantiated proposals and recommendations for implementing them.

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AFSS DATE 27 MAR 1972 TRANSLATIONS ON USSR Economic Affairs  
No. 369

1/3 043 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--MEASUREMENT OF THE ABSORBED DOSE OF COSMIC RADIATION ON THE  
'KOSMOS-228' SATELLITE -U-  
AUTHOR-(02)-MAKHMUDOV, B.M., MADUYEV, V.L.  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, VESTNIK MOSKOVSKOGO UNIVERSITETA, FIZIKA, ASTRONOMIYA, NO  
2, 1970, PP 225-229  
DATE PUBLISHED-----70  
SUBJECT AREAS--ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY, PHYSICS  
TOPIC TAGS--ARTIFICIAL EARTH SATELLITE, RADIATION MEASURING INSTRUMENT,  
COSMIC RADIATION, SCINTILLATION COUNTER, IONIZATION CHAMBER, GAS  
DISCHARGE COUNTER, RADIATION DOSAGE, PRIMARY COSMIC RAY, RADIATION BELT,  
MAGNETIC ANOMALY, PROTON, SPACECRAFT CARRIED EQUIPMENT/(U)SIZBG COUNTER,  
(U)COSMOS 228 SATELLITE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3001/0852 STEP NO--UR/0188/70/000/002/0225/0229  
CIRC ACCESSION NO--AP0126525  
UNCLASSIFIED

2/3 043

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0126525

ABSTRACT/EXTRACT--(U) SP-0- ABSTRACT. THE ARTIFICIAL EARTH SATELLITE "KOSMOS-228" CARRIED RADIOMETRIC APPARATUS FOR INVESTIGATING COSMIC RADIATION AT LOW ALTITUDES. THE INSTRUMENTATION CONSISTED OF A SCINTILLATION COUNTER, IONIZATION CHAMBER AND FIVE GAS DISCHARGE COUNTERS, THREE OF WHICH HAD MAGNETIC ELECTRON ANALYZERS. PART OF THE "KOSMOS-228" EXPERIMENTAL PROGRAM WAS DOSIMETRIC MEASUREMENTS ALONG THE SATELLITE FLIGHT PATH. THE DOSE WAS MEASURED FROM THE ENERGY RELEASE IN A CSI(T1) CRYSTAL OF A SCINTILLATION COUNTER AND ALSO AN IONIZATION CHAMBER AND SI-ZBG COUNTER. THE SCINTILLATION COUNTER, CONSISTING OF A CSI(T1) CRYSTAL 10 MM IN DIAMETER AND WITH A THICKNESS OF 1.7 MM BEHIND A ALUMINUM FOIL 10 MU M IN THICKNESS (SIMILAR TO 2 MG TIMES CM PRIME NEGATIVE2) HAD A GEOMETRY FACTOR G SIMILAR OR EQUAL TO 1 CM PRIME2. STERAD WITH A TOTAL GEOMETRY FACTOR OF THE CRYSTAL G SIMILAR OR EQUAL TO 0.8 CM PRIME2. THE COUNTER WAS SITUATED OUTSIDE THE INSTRUMENT PACKAGE AND MEASURED THE TOTAL ENERGY RELEASE IN THE CRYSTAL AND THE COUNTING RATE FOR THREE ENERGY THRESHOLDS (E IS GREATER THAN 40 KEV. E IS GREATER THAN 300 KEV AND E IS GREATER THAN 5 MEV). THE SI-ZBG COUNTER AND THE IONIZATION CHAMBER WERE SITUATED WITHIN THE SATELLITE BEHIND A MINIMUM SHIELDING IS SIMILAR TO 1 G TIMES CM PRIME NEGATIVE2. THE INTENSITY REGISTERED BY THE SI-ZBG COUNTER WAS PLOTTED ON A MAP AS LINES OF EQUAL INTENSITY.

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0126525

ABSTRACT/EXTRACT--THE GENERAL NATURE AND PECULIARITIES OF DISTRIBUTION OF THE LINES OF EQUAL INTENSITY FOR ALTITUDES 205-265 KM BEHIND A SHIELDING IS SIMILAR TO 1 G TIMES CM PRIME NEGATIVE 2 (AL) AGREE WELL WITH EARLIER MEASUREMENTS, TAKING INTO ACCOUNT THE DIFFERENCE IN ALTITUDES AND THE DIFFERENCES IN THE THICKNESS OF THE SHIELDING. FIG. 2 IN THE TEXT SHOWS THE ABSORBED DOSE IN THE FORM OF ISODOSES CORRESPONDING TO THE INTENSITY OF ENERGY RELEASE IN THE SCINTILLATION COUNTER. COMPARISON OF DATA FROM THE GAS DISCHARGE AND SCINTILLATION COUNTERS REVEALS THAT THE GEOMAGNETIC CUTOFF OF PRIMARY COSMIC RAYS CONTINUES TO PLAY A DECISIVE ROLE IN GEOGRAPHIC DISTRIBUTION OF THE INTENSITY OF THE ABSORBED DOSE AT LOW ALTITUDES. IT IS SHOWN THAT THE MAXIMUM ABSORBED DOSE, 3.9 MRAD, WAS ON THE 12TH REVOLUTION. HOWEVER, DURING THE MULTIDAY SATELLITE FLIGHT THIS ABSORBED DOSE CAN SOMEWHAT RISE DUE TO MORE PROLONGED PRESENCE OF THE SATELLITE IN THE REGION OF THE INNER RADIATION BELT IN THE NEIGHBORHOOD OF THE BRAZILIAN MAGNETIC ANOMALY. THE MINIMUM ABSORBED DOSE OF SIMILAR TO 1.5 MRAD WAS ON THE THIRD REVOLUTION. THE PRINCIPAL CONTRIBUTION TO THE ABSORBED DOSE WAS FROM PROTONS WITH AN ENERGY  $E$  IS GREATER THAN 5 MEV FROM THE RADIATION BELTS.

FACILITY: NUCLEAR PHYSICS SCIENTIFIC RESEARCH INSTITUTE, MOSCOW UNIVERSITY.

UNCLASSIFIED

USSR

UDC 612.015.31+612.014.4

YUKUSOV, A. Yu., MAKHUMDOV, E. S., and ISLAMGALIYEVA, F. , Physiology Division  
Academy of Sciences, Uzbek SSR, Tashkent

"Water-Electrolyte Metabolism in Persons From Different Climatic Zones After  
Exposure to High Temperatures"

Leningrad, Fiziologicheskii Zhurnal SSSR, No 8, 1971, pp 1,198-1,202

Abstract: Various indexes of water-electrolyte metabolism were studied in local inhabitants in Tashkentskaya Oblast in Central Asia and in persons who had come there from temperate and cold regions of the Soviet Union. The measurements were made during the summer when temperatures of 28 to 34° and relative humidity of 30 to 40% prevailed. Newly arrived individuals from temperature regions consumed 68.6% more liquid than did the local inhabitants, lost more than twice as much extrarenal water, and exhibited a slight decrease in diuresis and sharp decrease in sodium (by 46.5%) and potassium (by 34.6%) content in the urine. The amount of sodium and potassium in sweat was, respectively, six times and twice as high as in the local inhabitants. Blood sodium increased while blood potassium decreased. These differences in metabolic indexes were much more pronounced in those who had come from cold regions. But after the individuals remained in the Tashkent area for over one

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USSR

YUNUSOV, A. Yu. et al., Fiziologicheskii Zhurnal SSSR, No 8, 1971,  
pp 1,198-1,202

year, all the above indexes decreased (an indication of adaptation to the new conditions), but not to the level characteristic of the local population.

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USSR

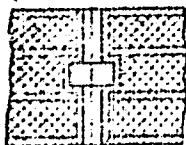
UDC 621.3.049.75

SHIKHAYEV, K. N., USTINOV, Yu. A., ZHIGALOV, A. T., ZHAK, L. I., MAKHMUDOV, M.

"A Method of Making Coupling Holes in Multilayered Printed-Circuit Boards"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obrabztsy, tovarnyye znaki, No 2, Jan 71, Author's Certificate No 290493, division H, filed 24 Feb 69, published 22 Dec 70, p 170

Translation: This Author's Certificate introduces a method of making coupling holes in multilayered printed-circuit boards. As a distinguishing feature of the patent, the area of contact between the conductors of inner layers of the printed circuit board and the metallizing cap is increased by making the coupling holes with a stepped shape by predrilling the holes in the insulating liners with a diameter greater than that of the holes made after the boards have been assembled and pressed.



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1/2 005 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--FIRST INDUSTRIAL TEST OF THE CEMENTING OF A WELL BY ADDING  
PETROLEUM TO THE CEMENT SLURRY -U-  
AUTHOR--(05)-MAKHADOV, M.N., ZHURAYLEV, G.I., SHVARTS, YA.A., SIMONENKOV,  
I.D., TAVANETS, A.I.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. VYSSH. UCHER. ZAVED., NEFT GAZ 1970, 13(3), 19-24  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--CEMENT, PETROLEUM EXTRACTION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3005/1212 STEP NO--UR/0152/70/013/003/0019/0024  
CIRC ACCESSION NO--AT0133209  
UNCLASSIFIED

2/2 005 UNCLASSIFIED PROCESSING DATE--13NOV70  
CIRC ACCESSION NO--AT0133209  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CEMENT SLURRY MIXED WITH  
1.5PERCENT PETROLEUM AND 0.35PERCENT TARTARIC ACID BASED ON DRY CEMENT  
GAVE SUFFICIENTLY STRONG STONE. THE PUMPABILITY OF THE CEMENT SLURRY  
WAS THUS IMPROVED AND GREATER SPEED OF ITS ASCENDING FLOW PROVIDED.  
FACILITY: AZERB. INST. NEFTI KHIM, IM. AZIZBEKOVA, BAKU, USSR.

UNCLASSIFIED

Diagnosis

USSR

MAKHMUDOV, O. S., Professor, Tashkent Medical Institute

"Some Problems of Modern Clinical Therapy and Diagnosis of Infectious Diseases"  
Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 9, Sep 70, pp 60-64

Abstract: Improved living conditions and particularly mass preventive therapy among the population of the USSR have resulted in a decreased incidence of many infectious diseases, including smallpox, poliomyelitis, diphtheria, measles, infectious hepatitis, and pertussis. Mass inoculation with the use of new drugs such as sulfanilamide preparations, sera, vaccines and antibiotics, has created new problems necessitating a new approach to epidemiology, therapy, and diagnostics. The symptoms of typhoid fever, infectious hepatitis, dysentery, and measles have become far less severe (for example, measles symptoms are milder in inoculated children), causing frequent errors in diagnosis, and delayed hospitalization and beginning of therapy. In modern treatment of atypical and mild forms of infectious diseases, wide use of auxiliary methods of laboratory diagnosis are recommended, such as early bacteriological and serological tests, immunological and allergic reactions, biological tests and fluorescent antibody methods. The combined use of such methods makes correct and timely diagnosis of infectious diseases in their modern clinical forms much easier.

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1/2 016 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--PREPARATION OF CATIONIC SURFACE ACTIVE AGENTS FROM A GAS CONDENSATE  
-U-  
AUTHOR--(03)-ALIMOV, A.A., MAKHMUDOV, T.M., AKHMEDOV, R.S.  
COUNTRY OF INFO--USSR  
SOURCE--UZB. KHIM. ZH. 1970, 14(2), 50-2  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--SURFACE ACTIVE AGENT, CHLORINATED AROMATIC COMPOUND, PYRIDINE,  
TRIETHYLAMINE, CHLORIDE, SURFACE TENSION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3008/0917 STEP NO--UR/0291/70/014/002/0050/0052  
CIRC ACCESSION NO--AP0137945  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0137945

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RPH (R CONTG. 1-5 C ATOMS) FROM GAS CONDENSATE WAS CONVERTED TO RC SUB6 H SUB4 CH SUB2 CL IN 75-90PERCENT YIELD AT 80-90DEGREES WITH 1.2 MOLES PARA FORMALDEHYDE IN CONCD. HCL CONTG. ZNCL SUB2 AND SATO. WITH HCL. HEATING WITH AQ. PYRIDINE, ET SUB3 N, OR (HOCH SUB2 CH SUB2) SUB3 N AT 80-90DEGREES FOR 6 HR GAVE THE CORRESPONDING QUATERNARY CHLORIDES, OBTAINED AS WAXY SOLIDS BY DRYING IN VACUO. SURFACE TENSIONS OF 1PERCENT SOLNS. WERE 40, 32, 32.5, AND 29.4 DYNES-CM, RESP. FACILITY: INST. KHIM., TASHKENT, USSR.

UNCLASSIFIED

USSR

MAKHIMDOV, Ya. Kh., KHAKIMOV, Kh. A., and OGLOBLINA, N. M., Uzbek Scientific Research Institute of Hematology and Blood Transfusion

"Obtaining Large Amounts of Donor Plasma through Plasmapheresis"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 6, 1970, p 53

Translation: The effects of repeated plasmapheresis on the donor's organism were studied. Over the course of two years, 80 persons aged 20 to 50, who had been donors for one to 20 years or more, were examined. Because plastic bags and a special centrifuge were not available, 500-milliliter flasks made of domestic glass of the NS-2 brand were used; they underwent chemical and physical processing, sterilization, and centrifugation at 1,500-3,000 rpm without cooling. Microscopic examination of the blood after centrifugation revealed that no damage was done to the formed elements. The donors were examined in the usual manner; in addition, their liver functions were tested and the concentration of plasma proteins and their fractions was measured. The flasks with blood were equilibrated on a balance and centrifuged for 20 minutes at 1,500 rpm. The plasma was drawn off, and the formed elements were reinfused into the donors. On the average 250 ml of plasma were obtained from 400 ml of blood per donor. Most plasma donors displayed small fluctuations in their hematological indices, but these were essentially within the

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USSR

MAKHMUDOV, Ya. Kh., et al, Meditsinskiy Zhurnal Uzbekistana, No 6, 1970, p 53

normal range. No post-transfusion complications were observed in either the donors or the patients. The results indicate that the method of plasmapheresis on a centrifuge without cooling is harmless, and that it can be recommended for wide use in the blood transfusion service.

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USSR

UDC: 8.74

~~MAKHINACH, G. V.~~ RAKOVICH, A. G.

"Operations on Contours During Automatic Planning of Machine-tool Equipment"

Vychisl. Tekhn. v Mashinostr. Nauch.-tekhn. Sb. [Computer Equipment and Machine Building, Scientific and Technical Collection], 1971, pp 77-84 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V593, by the authors)

Translation: Methods of realization of operations on contours are studied as operations on sets.

1/1

USSR

UDC: 681.325

MAKHANOV, V. D.

"An Analog-Digital Converter"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,  
No 10, Apr 72, Author's Certificate No 332567, Division H, filed 31 Aug 70,  
published 14 Mar 72, p 223

Translation: This Author's Certificate introduces an analog-digital converter which contains an integrator, a feedback unit, a code-to-voltage converter, an output register, a cadence pulse generator, flip-flops, diodes and a kipp oscillator. The output of the integrator is connected to the input of a comparison device, and the cadence pulse generator is connected through a diode to a distributor. As a distinguishing feature of the patent, accuracy is improved by adding a delay line, an OR circuit, auxiliary diodes and a flip-flop. The outputs of the distributor are connected through diodes to the inputs of the flip-flops for the most significant digits of the output register which control the code-to-voltage converter. The output of this converter is connected to the output of the feedback unit. The output of the last flip-flop for the most signif-

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USSR

MAKHANANOV, V. D., USSR Author's Certificate No 332567, Division H

icant digits of the output register is connected through the first auxiliary diode to the input of the auxiliary flip-flop. The second output of the last flip-flop for the most significant digit of the output register is connected to the first input of the second auxiliary diode. The second input of this diode is connected to the input of the distributor, and the third input is connected to one output of the auxiliary flip-flop and to the controlling input of a diode connected between the output of the comparison device and the diodes which control the flip-flops for the most significant digit of the output register. The output of the second auxiliary diode is connected through the delay line to the trigger input of the kipp oscillator, to the other input of the first auxiliary diode, and to one input of the OR circuit. The other input of the OR circuit is connected to the other output of the auxiliary flip-flop and to the controlling input of the diode connected between the input of the feedback unit and the output of the comparison device. The output of the OR circuit is connected to the interrogation input of the comparison device.

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Glass and Ceramics

USSR

UDC 666.11.01:620.171.5

VIDRO, L. I., MAKHNAVETSKIY, A. S., ZATSMAN, I. R., TROSHIN, N. N., KHAYKINA, M. A., MIKHAYLOVA, Z. G.

"Installation for Measurement of Stresses in Sheet Glass in Reflected Light"

Moscow, Steklo i Keramika, No 11, 1972, pp 19-20.

Abstract: The Saratov Affiliate of the State Glass Institute has developed a laser installation for measurement of stresses in sheet glass. A helium-neon laser is used as a light source, the beam of light of which is polarized, then transmitted through the glass, reflected on the second surface of the glass, focussed, compensated and converted to an electric current, measured by an ammeter. The use of the reflection of the light from the second surface of the glass allows all parts of the installation to be located on the same side of the sheet of glass, in many cases the only possible arrangement. The use of the laser allows the light beams reflected from the first and second surfaces of the glass to be fully separated.

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1/2 041

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--COMPARATIVE CHARACTERISTICS OF THE HEAT TRANSFER OF GLASSES WITH  
AND WITHOUT RADIO SHIELDING COATINGS -U-  
AUTHOR-(02)-MAKHNAVETSKIY, A.S., TROSHIN, N.N.

COUNTRY OF INFO--USSR

SOURCE--STEKL KRAM. 1970, 27(2), 11-14

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--HEAT TRANSFER, ELECTRIC CONDUCTIVITY, SPECIALIZED COATING,  
GLASS CONDUCTIVITY, GLASS COATING, SHEET GLASS

CENTRCL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/1577

STEP NO--UR/0072/70/027/002/0011/0014

CIRC ACCESSION NU--AP0125202

UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125202

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ORDER TO EXPLAIN THE PECULIAR NATURE OF HEAT TRANSFER OF GLASSES WITH RADIO SHIELDING (CURRENT CONDUCTING) COATINGS ON THEM, A SERIES OF LAB. EXPTS. WAS MADE. COATED AND UNCOATED GLASS SAMPLES WERE INVESTIGATED, PREPD. FROM INITIAL GLASS BY VERTICAL DRAWING. THE DIMENSIONS OF THE SAMPLES WERE 100 TIMES 100 TIMES 8.45 MM, WHICH CORRESPONDS TO THE HEAT EXCHANGE CONDITIONS OF AN UNLIMITED PLATE. THE SAMPLES WERE LOADED IN THE VERTICAL POSITION IN A LAB. FURNACE EQUIPPED WITH OPEN HEATERS. THE TEMP. OF THE WORKING AREA OF THE FURNACE WAS SELECTED AS 600 DEGREES AND WAS KEPT CONST. THROUGHOUT THE EXPT. THE TEMP. WAS MEASURED AND CONTROLLED BY THERMOCOUPLES. THE TIME OF HEATING OF THE COATED SAMPLES WAS LONGER BY A FACTOR OF 1.3 THAN THE HEATING TIME OF UNCOATED SAMPLES. HEAT TRANSFER BOTH IN SHEET AND IN BULK GLASS SAMPLES IS DONE BY CONVECTION AND BY RADIATION. A THEORETICAL CALC. OF THE SHEET AND CONVECTIVE HEAT TRANSFER COEFFS. WAS OBTAINED. IN VIEW OF THE GOOD AGREEMENT BETWEEN THE THEORETICAL AND THE CALCD. DATA IT WAS PROPOSED THAT THE ONLY PARAMETER WHICH DIFFERED IN BOTH TYPES OF GLASS WAS THE DEGREE OF BLACKNESS OF THEIR SURFACE. AN ATTEMPT WAS ALSO MADE TO CALC. APPROX. THE CHANGES IN THE TEMPS. WITH TIME IN THE CHARACTERISTIC CROSS SECTIONAL POINTS OF THE SAMPLES. CONVENTIONAL FURNACES CAN BE USED TO COOL SHEET GLASS COATED WITH RADIO SHIELDING COATINGS WITHOUT ANY SPECIAL MODIFICATIONS. FACILITY: SARATOV. FILIAL GIS, SARATOV, USSR.

UNCLASSIFIED

USSR

UDC 611.839+615.361.814.3]:359.6

POLOZHENTSEV, S. D., Lt Col Med Serv, Candidate of Medical Sciences, PADKIN, V. V., Lt Col Med Serv, Candidate of Medical Sciences, NAUMOV, G. M., Lt Col Med Serv, and MAKHENKO, A. A., Maj Med Serv.

"The State of the Sympatho-Adrenal System in Sailors During Long-Term Cruises"

Moscow, Voenno-Meditsinskiy Zhurnal, No 6, 1973, pp 56-57

Abstract: Determinations of urinary excretion of catecholamines were performed on two groups of sailors. In the first group comprising 28 men, noradrenaline excretion was moderately increased (39 units/min) and adrenalin excretion decreased (7) prior to sailing, corresponding to the general emotional excitation of anticipation. During the second half of cruising when adaptation to the changed surroundings was achieved, noradrenalin excretion increased to 67.6 while adrenalin excretion remained unchanged (6.9). Immediately after completion of the cruise, noradrenalin excretion fell to 31.6 while adrenalin excretion rose to 13.6. The second group comprising 21 men repeatedly sailed from one climate zone into another. During the first half of cruising, excretion of both catecholamines was elevated to about 40, indicating exposure to severe stress. In the final period of cruising when marked fatigue was observed in most

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USSR

POLOZHENTSEV, S. D., et al., Voenno-Meditsinskiy Zhurnal, No 6, 1973, pp 56-57

sailors, excretion of noradrenalin fell to 9.2 and that of adrenalin to 12.4. Immediately after completion of the cruise, noradrenalin excretion rose to 24.6 while adrenalin excretion further fell to 3.8. The figures indicate a dissociation between the activities of the adrenal medulla and the sympathetic nervous system, corresponding to the various periods of adaptation to the changing external conditions.

2/2

- 48 -

Welding

USSR

UDC 621.791.793.011

SHEKERA, V. M., Engineer, MAKHENKO, V. I., Doctor of Technological Sciences, and LYCHKO, I. I., Candidate of Technical Sciences, Electric Welding Institute imeni YE. O. Paton of the Academy of Sciences UkrSSR

"Stresses in Electrosag Surfacing of Cylindrical Objects"

Kiev, Avtomaticheskaya Svarka, No 1(250), Jan 74, pp 32-35

Abstract: The stresses arising in a steel cylinder during electrosag surfacing of the outer surface and when filling the inner hollow with Cu were investigated by an experimental-computation method based on a mathematical model of the process consisting of models of the temperature field and the deformation processes. The parameters of the model are regulated using the experimental data of temperature cycles in some characteristic points and of the residual elastic deformations on the inner or outer cylinder surfaces. The model of deformation processes is formulated as a problem of nonisothermal plastic flow for an ideal elasto-plastic medium satisfying Mises yield condition. The distribution of residual stresses in cylinder sections is discussed by reference to diagrams. In the surfaced metal the residual stresses can considerably exceed the yield limit of the material, and they depend to a great extent on the specific heat input. In case the physical properties of the sur-  
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USSR

SHEKERA, V. M., et al., *Avtomaticheskaya Svarka*, No 1(250), Jan 74, pp 32-35

faced metal are close to properties of the base metal, the magnitude of the specific heat input can noticeably affect the residual stresses in electroslag surfacing of the outer cylinder surface. Five figures, one table, 11 formulas, three bibliographic references.

2/2

- 47 -

USSR

UDC: 621.791.052.011:539.3

YUSHCHENKO, K. A., MAKHNEKO, V. I., and STARUSHCHENKO, Institute of Electric Welding  
imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR

"Thermal Stresses in the Welded Joints of Invar and Stainless Steel at Cryogenic  
Temperature"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 73, pp 27-29

Abstract: The authors use computational methods and the Minsk-22 computer to study the distribution of thermal stresses in the welded joints of pipes made from Invar, and Invar and the following types of stainless steel: OKH18N10T and OOKH20N16AG6. Increasing the coefficient of thermal expansion of the seam metal up to  $\alpha = 4-5 \cdot 10^{-6}$  degree<sup>-1</sup> in the welded joints of Invar results in an insignificant increase in thermal stresses for temperature changes in the 4-293°K interval. Significant stresses arise in the welded joint at  $\alpha = 10-12 \cdot 10^{-6}$  degree<sup>-1</sup>. The use of the KH18N10T type material as an addition agent is not desirable in the welded joints of pipelines made from 36N grade alloy, where the pipelines operate under conditions of cyclical temperature change within the 4-293°K limits (without taking into consideration the application of external loads). Instead, 36NGMT filler wire should be used. When using 36NGMT for welding the following materials, which have to operate at temperature changes at low

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YUSHCHENKO, K. A., et al, Avtomaticheskaya Svarka, No 10, Oct 73, pp 27-29

temperatures, the welding has to be carried out carefully: 36N-KH18N10T, 36N-000KH20-N16AG6. The stresses are evoked by differences in the coefficients of thermal expansion during thermal changes within the 4-293°K interval.

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USSR

UDC 621.791.011

MAKHNEKO, V. I., Doctor of Technical Sciences, PIVTORAK, N. I., Engineer, and SHEKERA, V. M., Engineer, Electric Welding Institute imeni Ye. O. Paton of the Academy of Sciences UkrSSR

"Calculation of Bending-Torsional Deformation in Welding Rods of Thin-Walled Open Sections"

Kiev, Avtomaticheskaya Svarka, No 7(244), Jul 73, pp 24-29

Abstract: An algorithm, suggested for the rated estimate of bending-torsional deformations in welding longitudinal seams of thin-walled linear rods of open section, is based on ordinary hypotheses of the technical theory of thin-walled rods generalized for the case of elasto-plastic strain under non-isothermic conditions. Application is made of the method of sequential tracing of elasto-plastic deformations on various lengthwise sections of the rod in the heating process of welding and in temperature leveling. Main correlations determining the mathematical model are analyzed. Numerical results of calculations of a strip-angle type open profile are discussed by reference to diagrams. Unlike bending, torsional deformations of thin-walled open section rods depend not only

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MAKHNEKO, V. I., et al., *Avtomaticheskaya Svarka*, No 7(244), Jul 73, pp 24-29  
on the location of the elasto-plastic deformation center, but also  
on the direction of the tangential stress vector in each section.  
The torsional deformations are essentially affected by the linear  
energy and the direction and order of seam welding. By the discus-  
sed calculation methods, the degree of torsional strain can be ra-  
ted. Seven figures, eleven formulas, six bibliographic references.

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USSR

UDC 621.791.011

IZBENKO, L. A., and MAKINENKO, V. I., Kiev

"Specifics of the Process of Propagation of Heat During Welding of Dissimilar Disks"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 15-18.

Abstract: An analytic solution is given for the temperature field during butt welding of composite circular disks of different materials or of different thickness with a powerful, rapidly moving heat source, on the basis of the general theory of propagation of heat during welding. Areas of applicability of simpler calculation plans are demonstrated for several particular cases.

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USSR

UDC 621.791.011

IZBENKO, L. A., and MAKINENKO, V. I., Kiev

"Specifics of the Process of Propagation of Heat During Welding of Dissimilar Disks"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71, pp 15-18.

Abstract: An analytic solution is given for the temperature field during butt welding of composite circular disks of different materials or of different thickness with a powerful, rapidly moving heat source, on the basis of the general theory of propagation of heat during welding. Areas of applicability of simpler calculation plans are demonstrated for several particular cases.

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1/2 024 .  
UNCLASSIFIED  
TITLE--KINETICS OF THE STRESS STRAIN STATE DURING THE WELDING UP OF A  
CRACK IN A THIN PLATE -U-  
AUTHOR--(03)-~~MAKHENKO~~, V.I., VELIKOIVANENKO, YE.A., SHEKARA, V.M.  
COUNTRY OF INFO--USSR  
SOURCE--AVTOMAT. SVARKA, FEB. 1970, (2), 36-40  
DATE PUBLISHED-----70  
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS  
TOPIC TAGS--METAL CRACKING, WELDING, METAL STRESS, STRAIN  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/0312  
STEP NO--UR/0125/70/000/002/0036/0040  
CIRC ACCESSION NO--AP0124071  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0124071

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC CHANGES TAKING PLACE IN THE STRESS, STRAIN, AND TEMP. DISTRIBUTIONS AROUND CRACKS IN METAL PLATES DURING WELDING UP OPERATIONS ARE DISCUSSED ON THE BASIS OF THEORETICAL CALCULATIONS AND EXPERIMENTAL TESTS. IN THE REGION IMMEDIATELY SURROUNDING THE WELD COMPRESSIVE STRAINS TEND TO DEVELOP, WHILE IN THE COOLING STAGE TRANSVERSE STRAINS CHANGE LESS RAPIDLY WITH TIME THAN LONGITUDINAL STRAINS. THE PRACTICAL IMPORTANCE OF THESE AND OTHER FACTORS WHEN WELDING UP CRACKS IS INDICATED.

UNCLASSIFIED

USSR

UDC 621.791.756.011

GOTAL'SKIY, Yu. N., MAKHNENKO, V. I., SHEKERA, V. M., Ye. O. Paton Electric Welding Institute

"Influence of Nickel in Austenitic Seam Metal on Stresses in Neighboring Dissimilar Steels"

Kiev, Avtomaticheskaya Svarka, No 5, May 1972, pp 25-29.

Abstract: Butt joints of types Kh18N10T and type 3 steels were produced by automatic welding under flux with a welding current of 460-500 a, voltage 25-28 v, welding rate 16 m/hr, power application 5,400 cal/cm. It was found that the nature of the stress state and residual stresses in welded joints of dissimilar steels after welding were practically independent of the nickel content in the austenitic seam metal. In welded joints subjected to heat treatment or used at high temperatures, the stress gradient in the welding zone decreases with increasing nickel content in the seam metal. This should result in an increase in the usage qualities of the joints, since this is the area of maximum tendency toward structural defects (vacancies, dislocations).

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Stress Analysis and Stability Studies

USSR

UDC 621.438-251:539.4

SVETLAKOV, Ch. L., MAKINEV, A. G., KOZHEVNIKOV, V. F., (Kaluga, Moscow)

"One Case of Rupture of Turbine Disks in a Gas-Turbine Engine"

Kiev, Problemy Prochnosti, No 12, Dec. 1972, pp 106-110.

Abstract: Results are presented from studies of the strength of a gas turbine disk in a low power gas turbine engine, performed in relationship to cases of disk rupture which have occurred. Results are presented from calculation and experimental analysis (by the polarization-optical method) of the stress state, as well as the values of concentration factors at points of contact of circular projections with the body of the disk. It is noted that the reason for rupture was high concentration of stresses under three-dimensional stress-state conditions, the nature of which does not allow redistribution of stresses.

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USSR

UDC: 669.14:621.785:620.1

DORONIN, I. V., ZOZULYA, A. N., MAKHNEV, Ye. S., KHAPOV, V. A., and  
CHERNUKHA, A. I.

"Method for Estimating the Mechanical Characteristics of Steels Subjected to  
Thermomechanical Treatment"

Moscow, Zavodskaya laboratoriya, No. 5, 1971, pp 606-607

Abstract: A relatively simple method is described for modeling the thermo-  
mechanical treatment process in high-alloy steels of the austenite and transi-  
tional austenite-martensite classes characterized by high  $\gamma$ -phase stability.  
The disadvantage of the method is the low deformation rate, which prevents it  
from completely imitating the conventional thermomechanical treatment process.  
The method has been successfully tested in processing steels of the Kh17N5M2,  
Kh17N5M3, and Kh21N5T types.

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USSR

UDC 547.785.5'791.8.07

SKVORTSOVA, G. G., DOMNINA, Ye. S., GLAZKOVA, N. P., and MAKHNO, L. P.,  
Irkutsk Institute of Organic Chemistry, Siberian Branch Academy of Sciences  
USSR

"The Interaction of N-Vinylazoles and N-Vinylindole With Halohydrins"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 6, Jun 73, pp 777-780

Abstract: The characteristics of the reaction of halohydrins (ethylene chlorohydrin, tetramethylene-1,4 chlorohydrin, 1-chloropropylene-2,3 -chlorohydrin, trimethylene-1,3 bromohydrin, ethylene fluorohydrin) with N-vinyl-imidazole (I), -benzimidazole (II), -benzotriazole (III), and -indole (IV) were studied. I and II reacted at the 3-position (at the N not bound to the vinyl group) with the formation of inner quaternary salts the halogen anion of which could be readily substituted with  $\text{NO}_3$  and  $\text{CNS}$  in reactions with  $\text{AgNO}_3$  and  $\text{KCNS}$  and the hydroxyl group with I in a reaction with  $\text{HI}$ . The vinyl group of I and II in the 1-N-position remained unchanged after the reaction with halohydrins. III reacted with the latter mainly over the vinyl group. The reaction of IV proceeded with vinyl polymerization and simultaneous formation of a quaternary salt. Brightly colored polymers of varying composition formed in this reaction.

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Acc. Nr:

MP0049958

Abstracting Service:

CHEMICAL ABST.

Ref. Code:

4170 21R0409

90189g Synthesis of N-vinyl-2,3-dihydroindole. Makino,  
L. P.; Domina, E. S.; Skvortsova, G. G. (Irkutsk Inst. Org.  
Khim., Irkutsk, USSR). *Khim. Geterotsikl. Soedin.* 1970, (1),  
128-9 (Russ). Reaction of 2,3-dihydroindole with  $C_2H_2$  in the  
presence of metallic K in dry dioxane in an autoclave 0.5 hr at



170-5° gave 65-70% N-vinylindoline (I), b<sub>p</sub> 94-5°,  $n_D^{20}$  1.6125,  
which polymd. on standing. G. M. Kosolapoff

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1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--PROPERTIES OF PYRIDINIUM TETRACHLOROBORATE AND HYDROCHLORIDES -U-  
AUTHOR--(02)-RYSS, I.G., MAKHONIN, V.D.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 366-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--BORON COMPOUND, CHLORIDE, HYDROLYSIS, PYRIDINE, COMPLEX  
COMPOUND, THERMAL DECOMPOSITION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3007/1149 STEP NO--UR/0078/70/015/002/0366/0368  
CIRC ACCESSION NO--AP0136569  
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136569

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RATE OF BASIC HYDROLYSIS OF (BCL SUB4 PRIME NEGATIVE) ANION IN PYRIDINIUM TETRACHLOROBORATES (PYHBCL SUB4) (I) (PY EQUALS PYRIDINE) IS VERY HIGH AND IS LIMITED ONLY BY THE RATE OF I SOLY. AT 20-100DEGREES, THERMAL DECOMP. OF I GIVES PYBCL SUB3 AND HCL AS THE ONLY PRODUCTS. AT 20DEGREES AND 1 ATM. HCL, PY POLYHYDROCHLORIDES IN CHCL SUB3 SOLN. FORM 2 PHASES: THE UPPER PHASE HAVING 1.37-3.75 AND THE LOWER PHASE HAVING 1.90-47 MOLE RATIO OF HCL-PYH PRIME POSITIVE-CHCL SUB3-PYH PRIME POSITIVE. FACILITY: DNEPROPETROVSK. INST. INZH. ZHELEZNODOROZH. TRANSP., DNEPROPETROVSK, USSR.

UNCLASSIFIED

MAKHON KO, K. P.

ACE ML  
AT0001709

AUTHOR: Gaidarov, I. Ia.; Malakhov, S. G. (Candidate of physico-mathematical sciences);  
 Malozemov, K. P.; Rastvorov, L. Ia.  
 SOURCE CODE: RU/320/67/000/000/002/001

## Only "Real" Movies

responsible for the formation of the particles.

20-25 rad/sec. The authors note that the results of the experiments are in good agreement with the results of the experiments of other authors. The authors note that the results of the experiments are in good agreement with the results of the experiments of other authors.

**ABSTRACT:** The authors have studied the

of global extinction competition with decay of highly radioactive particles and radioactive aerosols. The studies were carried out in the Moscow Region. Aerosol samples were collected on an FPM-3 filter by means of a filter arrangement described previously by S. G. Makhovaya, Yu. B. Derjagin, and N. B. Petrovskaya (Voennoye Vozdukhnoye Kontinentalnoye Produktivnoye Delo, 1964, No. 5). Polystyrene (Voennoye Vozdukhnoye Kontinentalnoye Produktivnoye Delo, 1964, No. 5), potassium nitrate (Voennoye Vozdukhnoye Kontinentalnoye Produktivnoye Delo, 1964, No. 5), and particles of a synthetic material (identified by microanalysis) a small plate of the filter with the collected particles was placed under a microscope 2 mm distant with a background of about 1 pulse/min. The decay curves of all the remaining aerosols after collection was observed. It was found that in some experiments the rate of decay of hot particles is several times less than the remaining activity. These results are in agreement with the hypothesis that the decay of

Case 2/2

UDC: 571.594.1.052.116.5.002.13

ACC NO: A55011709

experiments were on materials of relatively low activity. Experiments on more active particulates (No. 7 series/particulate and No. 60 series) showed relatively little difference in decay rate between the particulates and the monolayer of the sample. Involuted particles is suggested as a possible explanation. The relations are obviously complex and need more study. Defn. acc. No. 1 3 figures, 1 table, and 3 formulas.

[ 54 ]

SUB CODE: 1B, 04/ STATE NAME: none/ CDTA REF: 006/ CDS REF: 007

ATD Press 40-6 B. 45 24 May 1969

2/2

- 2 (6/165) -

MARHORN, K.E.

PETROLEUM

équivalent de vapeur et d'énergie, les modalités de traitement du gaz. Les données qui sont présentées concernent l'effet des variables multiples du coût de l'oxygène et du facteur thermique.

Les autres sujets importants, mais secondaires, traités, couvrent les spécifications des matières premières, l'élimination du carbone et son recyclage, les facteurs de service et les aspects économiques des technologies.

# Part 5—Processes of Technical Hydrogen Production with Heat Carrier Circulation

A. B. BAKHAROV, D. R. KATSOPOULOS, B. K. KELTSEV, K. E. MARHORN, D. K. MARHORN, E. I. DOLGOVA, G. I. URSOVA, V. T. SUMAROKOVA and V. V. VIKTOROV (USSR)

KELTSEV 400 8/33

The process of hydrogen production is performed in a reactor with a fluidized bed of catalyst particles. The catalyst is circulated which can be almost completely regenerated by heat transfer. This method intensifies the process and

allows for the production of hydrogen in a solid carrier heat carrier is developed. The results of the investigation of hydrocarbons, regeneration, heating of the heat carrier, and the development of industrial application of these processes will allow design

## Process for the Production of Hydrogen Industrially with Heat Carrier Circulation

The reforming conditions are effected in a reactor in which the catalyst is fluidized. The catalyst is circulated which can be almost completely regenerated by heat transfer. This method intensifies the process and

allows for the production of hydrogen in a solid carrier heat carrier is developed. The results of the investigation of hydrocarbons, regeneration, heating of the heat carrier, and the development of industrial application of these processes will allow design

The author Form is in the form of a book

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Received by the Library on 27 Apr 1971.  
The document is in the form of a book.  
The document is in the form of a book.

1/2 030 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--STUDIES OF SOVIET SCIENTISTS IN THE FIELD OF NUCLEAR METEOROLOGY.  
REVIEW OF WORK OF SOVIET SCIENTISTS ON NUCLEAR METEOROLOGY -U-  
AUTHOR-(03)-KAROL, I.L., MALAKOV, S.G., MAKHONKO, K.P.

COUNTRY OF INFO--USSR

SOURCE--INSTITUTE OF EXPERIMENTAL METEOROLOGY; MOSCOW, IZVESTIYA AKADEMII  
NAUK SSSR, FIZIKA ATMOSFERY I OKEANA, VOL VI, NO 4, 1970, PP 352-365  
DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--ATMOSPHERIC RADIOACTIVITY, RADIOACTIVE AEROSOL, RADIOACTIVE  
TRACER, RADIOACTIVE FALLOUT, CLOUD PHYSICS, ATMOSPHERIC PHYSICS,  
RADIOACTIVE CONTAMINATION, ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1994/0358

STEP NO--UR/0362/70/006/004/0352/0365

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CIRC ACCESSION NO--AP0114654

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER IS A CONCISE REVIEW OF THE MOST IMPORTANT RESULTS OBTAINED IN THE USSR DURING THE PAST DECADE IN THE STUDY OF NATURAL ATMOSPHERIC RADIOACTIVITY, IN THE INVESTIGATION OF THE SIZE AND COMPOSITION OF RADIOACTIVE AEROSOL PARTICLES AND THE REGULARITIES IN THEIR ATMOSPHERIC PROPAGATION, PROCESSES OF SELF PURIFICATION OF THE ATMOSPHERE FROM RADIOACTIVE CONTAMINATIONS AND THE USE OF RADIOACTIVE ISOTOPES AS ATMOSPHERIC TRACERS. EIGHTY RUSSIAN SOURCES ARE CITED AND THE REVIEW BRIEFLY DISCUSSES THE PROGRESS IN THE ABOVE FIELDS REPORTED IN EACH OF THESE CONTRIBUTIONS. THE REVIEW SHOWS THAT NUCLEAR METEOROLOGY HAS ALREADY BECOME A BRANCH OF ATMOSPHERIC PHYSICS WITH ITS OWN TASKS AND RESEARCH METHODS. AT PRESENT ISOTOPES ARE BECOMING INCREASINGLY IMPORTANT AS TRACERS FOR THE STUDY OF ATMOSPHERIC MOVEMENTS AT DIFFERENT SCALES, IN THE PHYSICS OF CLOUDS AND PRECIPITATION AND IN THE STUDY OF THE ATMOSPHERIC AEROSOL COMPONENT AND MOISTURE CYCLE; NATURAL ISOTOPES ARE BEING USED WITH INCREASING FREQUENCY. DATA FROM THE STUDY OF THE GLOBAL PROPAGATION AND FALLOUT OF PRODUCTS FROM NUCLEAR BURSTS MUST BE USED FOR DETERMINING AND REFINING THE GENERAL PATTERNS OF THESE PROCESSES FOR THEIR RELIABLE PREDICTION. MORE AND MORE PRACTICAL USE IS BEING MADE OF THE RESULTS FROM STUDY OF THE MIGRATION OF RADIOACTIVE CONTAMINANTS IN THE ATMOSPHERE AND BIOSPHERE IN GENERAL FOR MAKING QUALITATIVE AND QUANTITATIVE ESTIMATES OF THE PROPAGATION OF CHEMICAL, PRIMARILY INDUSTRIAL CONTAMINANTS.

UNCLASSIFIED

1/4 C38 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--ALL UNION CONFERENCE ON NUCLEAR METEOROLOGY --U--

AUTHOR--MAKHENKO, K.P.

COUNTRY OF INFO--USSR

M

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA,  
VOL. VI, NO. 2, 1970, PP. 218-220  
DATE PUBLISHED--70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, ATMOSPHERIC SCIENCES,  
NUCLEAR SCIENCE AND TECHNOLOGY  
TOPIC TAGS--METEOROLOGY, RADIOACTIVE TRACER, RADIOACTIVE FALLOUT,  
ATMOSPHERIC RADIOACTIVITY, NUCLEAR EXPLOSION, AEROSOL, METEOROLOGIC  
CONFERENCE, ATMOSPHERIC MODEL, RADIOACTIVE DECAY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1991/1282

STEP NO--UR/0362/70/006/002/0218/0220

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PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0110885

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ALL UNION CONFERENCE ON NUCLEAR METEOROLOGY WAS HELD AT OBNINSK DURING THE PERIOD 20-28 JUNE 1969. THE CONFERENCE WAS ORGANIZED BY THE MAIN ADMINISTRATION OF THE HYDROMETEOROLOGICAL SERVICE AND WAS ARRANGED BY THE INSTITUTE OF EXPERIMENTAL METEOROLOGY. IT WAS ATTENDED BY REPRESENTATIVES OF 51 SCIENTIFIC RESEARCH INSTITUTES, ORGANIZATIONS AND DEPARTMENTS AND MORE THAN 100 REPORTS WERE PRESENTED. THE FOLLOWING BASIC PROBLEMS WERE EXAMINED: USE OF RADIOACTIVE TRACERS IN METEOROLOGICAL RESEARCH; GLOBAL CONTAMINATION OF THE ATMOSPHERE AND FALLOUT OF RADIOACTIVE PRODUCTS OF NUCLEAR EXPLOSIONS; NATURAL ATMOSPHERIC RADIOACTIVITY OF TERRIGENOUS AND COSMIC ORIGIN; PROCESSES OF ATMOSPHERIC SELF PURIFICATION FROM RADIOACTIVE CONTAMINATIONS; FORMATION OF RADIOACTIVE AEROSOLS AND THEIR PROPERTIES; APPARATUS AND METHODS FOR STUDYING ENVIRONMENTAL RADIOACTIVE CONTAMINATIONS. RELATED PROBLEMS, ASSOCIATED WITH ACCUMULATION OF RADIOACTIVE PRODUCTS OF NUCLEAR EXPLOSIONS ON THE UNDERLYING SURFACE, WERE ALSO EXAMINED. EXAMPLES OF THE REPORTS ARE AS FOLLOWS: A PAPER BY I. L. KAROL' DEALT WITH A NUMERICAL MODEL OF THE GLOBAL TRANSFER OF RADIOACTIVE TRACERS IN THE ATMOSPHERE. THE MODEL CONSTRUCTED BY THE AUTHOR MAKES IT POSSIBLE TO STUDY THE SPATIAL AND TEMPORAL CHARACTERISTICS OF THE EXCHANGE OF AIR MASSES IN THE EARTH'S ATMOSPHERE AND CREATES A BASIS FOR DEVELOPING METHODS FOR COMPUTING THE GLOBAL PROPAGATION OF ADMIXTURES FROM STATIONARY AND INSTANTANEOUS SOURCES ON A PLANETARY SCALE.

UNCLASSIFIED

3/4 038

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0110885

ABSTRACT/EXTRACT--V. N. PETROV AND A. A. YER'SAAKOV PRESENTED A QUANTITATIVE MODEL OF THE ATMOSPHERIC FORMATION OF STRONTIUM-90, STRONTIUM-89 AND CESIUM-137 AEROSOLS AT THE TIME OF UNDERGROUND NUCLEAR EXPLOSIONS AS A RESULT OF THE PRECIPITATION OF ATOMS OF THESE ISOTOPES ONTO PARTICLES OF ATMOSPHERIC DUST ARISING IN THE ATMOSPHERE AS A RESULT OF THE RADIOACTIVE DECAY OF GASEOUS PRECURSORS. FOR THE FIRST TIME THE AUTHORS ESTIMATED THE CONCENTRATION OF THESE SECONDARY ATMOSPHERIC ISOTOPES. B. I. STYRO AND OTHERS GAVE PAPERS CONTAINING IMPORTANT RESULTS IN THE STUDY OF THE NATURAL RADIOACTIVITY OF THE ATMOSPHERE. VALUABLE MATERIAL WAS GIVEN ON THE CONCENTRATIONS OF COSMOGENIC ISOTOPES IN THE AIR AND PRECIPITATION; THESE DATA MAKE IT POSSIBLE TO JUDGE THE VELOCITIES OF VERTICAL EXCHANGE BETWEEN THE STRATOSPHERE AND TROPOSPHERE AND ALSO BETWEEN THE UPPER AND LOWER TROPOSPHERE. SPECIALISTS AT THE ACADEMY OF SCIENCES LITHUANIAN SSR ARE MAKING EXTENSIVE STUDIES OF COSMOGENIC ISOTOPES. INTERESTING STUDIES WERE MADE OF THE GAMMA FIELD IN THE NEAR EARTH LAYER OF THE ATMOSPHERE, ITS TEMPORAL VARIATIONS AND THE RELATIONSHIPS BETWEEN THE CONCENTRATION OF RADON AND ITS SHORT LIVED DECAY PRODUCTS IN THE AIR AND FALLING PRECIPITATION. V. N. BAKULIN AND OTHERS DESCRIBED THE USE OF RADON, THORON AND THEIR DAUGHTER DECAY PRODUCTS FOR INVESTIGATING TURBULENT EXCHANGE AND ATMOSPHERIC SELF PURIFICATION. IN PARTICULAR, IT WAS SHOWN THAT RADON AND THORIUM-B ARE EXTREMELY PROMISING TRACERS FOR STUDYING VERTICAL EXCHANGE IN THE SURFACE LAYER.

UNCLASSIFIED

4/4 038 UNCLASSIFIED PROCESSING DATE--13NOV70  
CIRC ACCESSION NO--AP0110885  
ABSTRACT/EXTRACT--THE REPORTS WILL ALL BE PUBLISHED IN THE TRUDY  
INSTITUTE EKSPERIMENTAL'NOY METEOROLOGII (TRANSACTIONS OF THE INSTITUTE  
OF EXPERIMENTAL METEOROLOGY).

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0054615

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DATA ON THE DEPOSITION OF RADIOACTIVE DUST AND ITS SCAVENGING BY PRECIPITATION WERE REVIEWED. EQUATIONS FOR DRY DUST DEPOSITION WITHOUT PRECIPITATION AND FOR WASHOUT OF DUST BY PRECIPITATION ARE PRESENTED AND EXPLAINED. TABULATED AND GRAPHICAL DATA ON WASHOUT PARAMETERS AND THE DEPOSITION OF AEROSOLS ARE GIVEN. IT IS CONCLUDED THAT THE OVERALL "DRY" DEPOSITION OF RADIOACTIVE DUST CANNOT YET BE CALCULATED WITH COMPLETE RELIABILITY, ALTHOUGH SOME SUCCESS IS BEING ACHIEVED BY THE STUDY OF THE SCAVENGING PROCESS.

FACILITY: GOSUDARSTVENNYI KOMITET PO ISPOL'ZOVANIYU ATOMMOI ENERGII SSSR, MOSCOW.

UNCLASSIFIED

Miscellaneous

USSR

MAKHORIN, B. I., ZOLOTUKHIN, V. D., and GREVTSEV N. V.

"Effect of Electric Discharge Parameters on the Formation of Films During Their Deposition by Electric Explosion"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 60-64

Abstract: Experiments were carried out with silver-palladium foil  $6 \times 15 \text{ mm}^2$  in size and  $30 \mu$  thick in air. Films were deposited on glass substrate heated to  $350-400^\circ\text{C}$  and which were located at a distance of 45 mm from the exploding foil. The power source varied from 32 to 128 microfarad, with a maximum voltage of 8 kV and stored energy of 4.1 kilojoule. The discharge inductance could be varied from 1 to 100 microhenry. Duration of the electric energy supplied to each sample was always 1 microsecond. Best films with respect to density and thickness were deposited starting with 1.8 kV. At this energy all foil samples exploded, producing very fine dispersed metal particles which uniformly cover the glass substrates. A further increase of voltage produced thin but very dense films. As a result, larger areas were covered with dense thin film without using additional material. Increase in voltage beyond 1.8 kV (which is called the "threshold" energy) decreased the mass of

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USSR

MAKHORIN, B. I., et al, Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 60-64

the condensed metal particles. This was attributed to increase in the intensity of impact waves reflected from the substrate. The reflected impact waves slow down the velocity of directed metal particles and they become scattered in the surrounding air. Inductance of the discharge profile had the greatest effect on the dispersity of exploded samples, mass of the dispersed particles, and the area of produced films. Films of high density and about 1 micron thick were obtained with the inductance of 1 to 10 microhenrys.

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-73-

USSR

UDC: 621.375.82

MAKHORIN, V. I., POPOV, A. I., PROTSENKO, Ye. D.

"Retuning Helium-Neon Laser Wavelength from 3.3912 to 3.3922  $\mu\text{m}$ "

Moscow, Kvant. elektronika--sbornik (Quantum Electronics--collection of works), No 1(13), "Sov. radio", 1973, pp 47-55 (from RZh-Fizika, No 8, Aug 73, abstract No 8D1041 by the authors)

Translation: An investigation is made of the competition of lines with  $\lambda_0 = 3.3912 \mu\text{m}$  and  $\lambda_1 = 3.3922 \mu\text{m}$  in a helium-neon laser. It is theoretically determined that the maximum emission output on line  $\lambda_1$  is equal to 50% of the power on line  $\lambda_0$ . The experimental output was 40% of the given power. The rate of decay of the lower level of line  $\lambda_1$  is determined, and it is found that the rate of decay of the lower levels of these lines is independent of pressure. Bibliography of 9 titles.

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USSR

UDC 621.391.833.44:621.317.757(088.8)

MAKHORIN, YE. G., SKVORTSOV, V. S., UTKIN, YU. I.

"Analyzer of the State of an Exchange Network by Discrete Relations"

USSR Author's Certificate No 218209, Filed 20 Mar 67, Published 26 Jan 70  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D31P)

Translation: An analyzer containing a circuit for recording received signals with a "third" solution is proposed. In order to decrease the probability of false isolation of a "network busy" signal in the presence of noise at the analyzer input, the output of the recording circuit with a "third" solution is connected via the channel to the input of the counter which counts the number of distorted characters. The output of this counter is connected via the coincidence circuit to the output of the device and, simultaneously, it is connected via the forbidden circuit, a waiting time delay line and a delay line amounting to the time of entry into synchronism, to the unlocking input of the gate and to the input of the analysis time delay line. The output of the latter is connected simultaneously to the blocking input of the gate, the clearing input of the counter, the second input of the comparison circuit and the recording input of the forbidden circuit. The starting input of the device is connected to the input of the delay line for the time of entry into synchronism.

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USSR

UDC: 539.4

GUSHCHA, O. I., LEBEDEV, V. K., GUZ', A. N., MAKHORT, F. G., Kiev

"Some Results of the Application of the Ultrasonic Nondestructive Method of Measurement of Residual Stresses"

Kiev, Problemy Prochnosti, No 8, Aug 73, pp 71-73.

Abstract: A method of nondestructive measurement of biaxial residual stresses is described, based on the regularities of propagation of ultrasonic waves in solids. The results of its practical application to the analysis of stresses in specimens and structural elements in the laboratory, as well as measurement of residual stresses in existing structures at aluminum plants are presented.

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